

REVISED 10/08

LSUE COURSE SYLLABUS

I.	Chemistry 1212	Instructor: Chemistry Faculty
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II.	Course description from the current LSUE catalog:
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Basic Chemistry Laboratory. Lab. 6; Cr. 2.

Basic laboratory operations including selected experiments and introductory inorganic qualitative analysis.

Prerequisite: Credit or registration in Chemistry 1202

III.	Textbook(s) and other required materials:
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No textbook required.

Multisensory Aids Required:

When time permits, video tapes on various laboratory activities will be shown.

Supplementary References

- A. Handbook of Chemistry and Physics
- B. The current text from Chemistry 1202 lecture

IV.	Evaluation/grading (policy and basis; number and frequency of tests and papers; weights of particular tests or papers; etc.):
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Major portion of the laboratory grade is based upon the Lab reports on the experiments performed. These reports are turned in weekly and graded on a scale from 1-10. A final examination is given and this, along with evaluation of student's technique, makes up the rest of the grade.

Lab. Reports: 75%

Final Exam: 15%

Technique: 10%

V.	Policies pertaining to attendance, late work, make-up work, etc.:
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Routine absence from the Laboratory is strictly prohibited and will not be tolerated! In the case of an unavoidable absence (sickness, death in the family, etc.), make up work is possible as arranged between the student and the instructor.

VI.	Course objectives:
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"The aims and objectives of Chemistry 1212 are to provide the scientifically inclined student with the opportunity to experiment and thus understand in more depth the fundamental principles and concepts introduced in the General Chemistry lecture series. Such experimentation serve not only to concretely exemplify theoretical concepts and to reinforce their utility but also to gradually develop technical skills such as organization, efficiency, coordination, sense of safety and self-reliance".

Students should:

Become familiar with the laboratory setting and laboratory chemicals and equipment.

Become aware of and exercise good technique in the laboratory; sense of safety, efficiency, organization, coordination, respect for chemicals and equipment, team spirit, common sense, scientific attitude/scientific maturity, honesty and enthusiasm.

Learn how to take and record measurements with the proper number of significant figures.

Learn how to obtain and interpret the results for each experiment performed.

Learn how to analyze and evaluate errors encountered during an experiment.

Learn how to keep a proper laboratory notebook.

VII.	Major instructional objectives:
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The instructor's main objective is to prepare the student to take on successfully more advanced labs in chemistry and/or other sciences. This is accomplished in this, the student's very first, laboratory course by:

1. Strict enforcement of the laboratory rules and regulations, technique and experimentation, scientific attitude and academic excellence by the instructor.
2. Strict adherence to the above requirements by the student.

In addition to the above the student should:

1. Learn to make mass and volume measurements using appropriate measuring devices specified in the procedure.
 - a. Learn to record numbers with the proper number of significant figures.
 - b. Learn how to use the analytical balance, triple-beam balance.

- c. Learn how to measure volume using the graduated cylinder, and the buret.
 - d. Learn how to use the volumetric equipment, e.g., volumetric pipette.
- 2. Learn to perform a dehydration experiment.
 - a. Learn proper use of Bunsen burners.
 - b. Learn how to use the analytical balance.
 - c. Learn to record numbers with 10,000th of a gram precision.
 - d. Learn to calculate %H₂O in a hydrate, and to determine % error.
- 3. Learn to perform a titration experiment.
 - a. Use a buret to add titrant into analyte.
 - b. Learn how to read a buret.
 - c. Use a volumetric pipette and a volumetric flask.
 - d. Perform equivalence point calculations to standardize a base.
 - e. Determine the equivalent weight of a solid acid through titration.
 - f. Determine percent acetic acid in vinegar through titration.
- 4. Be able to solve acid/base type problems dealing with Normality, Molarity, equivalents, moles, etc.
- 5. Perform a recrystallization procedure.
 - a. Learn to use vacuum filtration techniques to collect crystals.
 - b. Use a melting point apparatus to determine the melting points of various pure and impure substances.
- 6. Utilize proficiently the techniques of qualitative analysis to carry on determinations of ions in test solutions.
 - a. Learn how to read and follow a flowchart.
 - b. Use a centrifuge to separate a precipitate from a filtrate.
 - c. Use pH paper to determine acidity of solutions
 - d. Learn to report qualitative findings in an unknown.

VIII. Brief summary of course content by major units of instruction:

Chemistry 1212 is a concentrated general chemistry laboratory which follows as closely as possible the material introduced in lecture. The experiments listed below are carefully selected to give the student the best possible initial training within the context of general chemistry. The order in the sequence of experiments is followed faithfully, although some changes do occur due to scheduling problems and the like.

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1. Introduction and Greetings.
2. Mass and Volume Relationships: Density of Liquids and Solids
3. Weighing Operations: Gravimetric Techniques
4. The Molecular Mass of a Gas
5. Titration Demonstration
6. Units of Concentration: The Volumetric Titration of Acids and Bases
7. Volumetric Analysis: The Equivalent Weight of a Solid Acid
8. Selected Volumetric Analysis, Acetic Acid in Vinegar or Citric Acid in Citrus Fruits
9. Titration Problem Session
10. Thermochemistry – The Heat of Reaction
11. Activity Series
12. Melting Points and Recrystallization
13. An Introduction to Qualitative Analysis (Study Lab)
14. The Silver Group (Two Labs)
15. The Hydrogen Sulfide Group (Two Labs)
16. The Ammonium Sulfide Group (Two Labs)
17. The Ionization Constant of Acetic Acid
18. Problem Session
19. Oxidation States of Manganese
20. The Rate of Chemical Reactions: Chemical Kinetics

IX.	Methods of instruction:
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Instructional methods used in this course are comprised of demonstrations, discussion sessions, study sessions, laboratory experiences, group projects, written reports, and time permitting, videotape series in experimental chemistry.

X.	Brief overview of special instructions:
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None.

XI.	Bibliography of supplemental references and/or source materials:
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None.

ADS	Americans with Disabilities Act) Statement
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Any student who is a “qualified individual with a disability” as defined by Section 504 of the Rehabilitation Act and Title II of the ADA, and who will need accommodated services (e.g., note takers, extended test time, audiotape, tutorials, etc.) for this course must register and request services through the Office of Academic Assistance Programs, S-150.

CSD	CODE OF STUDENT CONDUCT
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LSUE enforces discipline on campus to protect the academic environment of the campus and the health and safety of all members of the University community. To accomplish this objective, the University enforces standards of conduct for its students. Students who violate these standards can be denied membership in the LSUE community through imposition of disciplinary sanctions.

The LSUE Code of Student Conduct can be found on the LSUE website (lsue.edu). Follow the “Current Students” link from the homepage, and then click on “Student Handbook.”